

Pancreatic cancer – cancer of the pancreas

What is pancreatic cancer or cancer of the pancreas?

The pancreas is one of the largest glands in the human body. It is located immediately below the diaphragm in the rear part of the abdominal cavity, situated transversely behind the stomach, between the spleen and the duodenum.

The pancreas has two very important functions: it produces the digestive juices that are necessary for breaking down and fragmenting the food in the intestines. It also forms the hormones insulin and glucagon that regulate blood glucose levels.

Pancreatic cancer can develop in any region of the organ. The most commonly affected part is the head of the pancreas. The many forms of pancreatic cancer are linked to the different types of tissue in this gland.

Most patients contract the cancer in old age. The average age for men is 69 years and for women it is 76 years.

At present, these malignant tumours in the pancreas are almost untreatable. The likelihood of surviving for five years after developing pancreatic cancer is very low.

Pancreatic cancer is the fourth most common cause of death from cancer in both men and women.

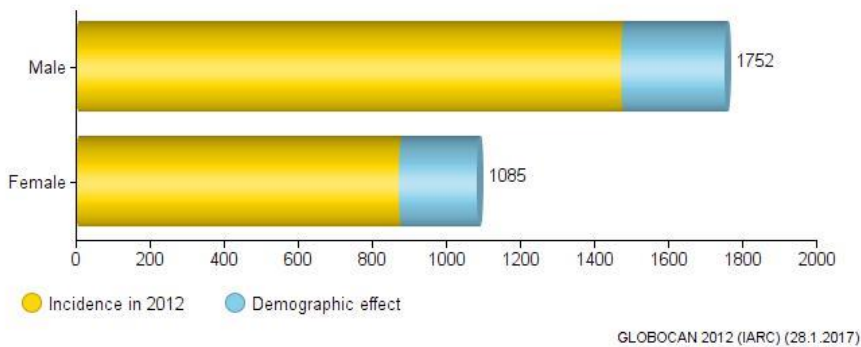
Egypt- Pancreatic cancer

| Year | Estimated number of new cancers (all ages) | Male | Female | Both sexes |
|---------------------------|--|------|--------|------------|
| 2012 | | 1473 | 874 | 2347 |
| | ages < 65 | 1022 | 396 | 1418 |
| | ages >= 65 | 451 | 478 | 929 |
| 2020 | | 1752 | 1085 | 2837 |
| | ages < 65 | 1186 | 451 | 1637 |
| | ages >= 65 | 566 | 634 | 1200 |
| Demographic change | | 279 | 211 | 490 |
| | ages < 65 | 164 | 55 | 219 |
| | ages >= 65 | 115 | 156 | 271 |

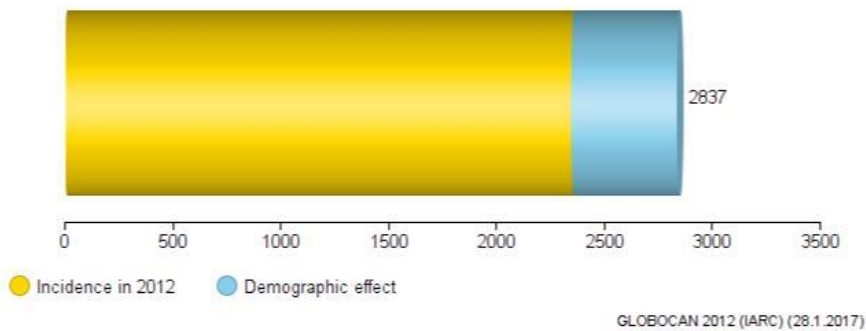
GLOBOCAN 2012 (IARC) - 28.1.2017

Population forecasts were extracted from the *United Nations, World Population prospects, the 2012 revision*. Numbers are computed using age-specific rates and corresponding populations for 10 age-groups.

Pancreas Number of new cancers in 2020 (all ages)



Egypt Pancreas Number of new cancers in 2020 (all ages) - Both sexes



What are the causes and risks for the development of pancreatic cancer?

The causes of the development of pancreatic cancer are not yet known. However, various factors may increase the risk. Among the most important risk factors are smoking and drinking too much alcohol. People who have had their stomachs removed are also at increased risk of this disease according to our present state of knowledge. Diet and genetic factors also play a part in the development of pancreatic cancer.

Risk factor: smoking

Cigarette smoking has been unequivocally proved to be a risk factor for the development of pancreatic cancer. It is estimated that smokers have a 3.5 times greater risk of developing pancreatic cancer. About a quarter of all cancers of the pancreas have a causal link to smoking.

Risk factor: alcohol consumption

Alcohol also appears to increase the risk of developing pancreatic cancer. Heavy alcohol use increases the risk by an estimated 2.5 times in both women and men.

Risk factor: previous illness

An increased risk of developing pancreatic cancer is present, in particular, in people who suffer from hereditary inflammation of the pancreas (pancreatitis). Forty per cent of patients with hereditary pancreatitis develop cancer of the pancreas by the age of 70.

People who have had gastric surgery in the past have a three to seven times greater risk of developing pancreatic cancer.

Risk factor: diet

It is suspected that dietary factors also have a role in the development of pancreatic cancer. A diet high in meat and fat may be linked to an increased risk of the disease.

Risk factor: genetic factors There are some families in whom the incidence of pancreatic cancer is high. However, in the vast majority of patients there is no genetic basis for the development of pancreatic cancer.

What role does lifestyle play in cancer of the pancreas?

In addition to the risk factors of smoking and high levels of alcohol consumption, there are increasing suggestions that diet also plays a role in developing pancreatic cancer.

The risk increases with high intakes of cholesterol and carbohydrates. A diet with plenty of fruit and vegetables appears to reduce the risk of pancreatic cancer. Beta-carotene and vitamin C may have a protective effect.

How is pancreatic cancer diagnosed?

Pancreatic cancers are often not diagnosed until an advanced stage. In cases of cancer of the pancreas, it is particularly important for the tumour to be detected at an early stage. The earlier it is diagnosed, the greater the chance of recovery.

Pancreatic cancers belong to the group of cancers that only rarely produce symptoms in the early stages. And what symptoms there are, are not particularly typical. They could have other, comparatively harmless causes.

Non-specific symptoms may occur:

Unexplained weight loss, pain in the abdominal region or back, jaundice, loss of appetite and nausea, newly occurring diabetes or vomiting

The following procedures are used for a diagnosis:

- Blood test
- Ultrasound scan
- Determination of tumour markers
- Endoscopy, in other words, reflective imaging of the stomach, duodenum, pancreas and bile ducts
- Computed tomography and magnetic resonance imaging

How is pancreatic cancer treated?

The doctor and patient decide together on the form of therapy or combination of several treatment methods that is advisable depending on the extent and form of the cancer: surgery, chemotherapy, radiotherapy, generally in combination with chemotherapy. The age and general health of the patient are also taken into account in selecting the treatment method.

The aim of chemotherapy is to kill cancer cells in the whole body by means of medicines that stop cell growth (cytostatic drugs). Cytostatic drugs act well against fast-growing cells. Cancer cells have the characteristic of growing very quickly.

Additional information: pancreatic cancer – classification of tumour type and tumour stage

In order to decide on the most suitable treatment, the diagnostic procedures described above must be used prior to the start of therapy to ascertain exactly how far the tumour has spread.

The tumour stage is calculated.

One of the tools used to do this is TNM classification (see Table below). T stands for the size and spread of the primary tumour, N stands for the number of lymph nodes affected and M stands for the occurrence and location of distant metastasis.

| T classification | |
|-------------------------|---|
| TX | Primary tumour cannot be evaluated |
| T0 | No signs of primary tumour |
| Tis | Carcinoma in situ |
| T1 | Tumour restricted to pancreas, 2 cm or less in maximum extension |
| T2 | Tumour restricted to pancreas, over 2 cm in maximum extension |
| T3 | Tumour extends beyond the pancreas but without infiltration of the coeliac artery or superior mesenteric artery |
| T4 | Tumour is infiltrating the coeliac artery or superior mesenteric artery |

| N classification | |
|-------------------------|--|
| NX | Regional lymph nodes cannot be evaluated |
| N0 | No regional lymph node metastasis |
| N1 | Regional lymph node metastasis present |

| M classification | |
|-------------------------|--|
| MX | Distant metastasis cannot be evaluated |
| M0 | No distant metastasis |
| M1 | Distant metastasis present |

These TNM criteria are used to categorise the various stages of the cancer that are of decisive importance for deciding on treatment. Stage I represents the smallest spread of the tumour, stage IV means a very advanced tumour with distant metastasis. Precise staging on the basis of the TNM criteria is shown in the Table below.

| STAGE UICC 2010 | TNM system | | |
|------------------------|-------------------|-------|----|
| Stage 0 | Tis | N0 | M0 |
| Stage IA | T1 | N0 | M0 |
| Stage IB | T2 | N0 | M0 |
| Stage IIA | T3 | N0 | M0 |
| Stage IIB | T1-T3 | N1 | M0 |
| Stage III | T4 | any N | M0 |
| Stage IV | any T | any N | M1 |

It is also vitally important to know after surgery whether the tumour was completely removed. The success of the operation is described as shown below:

| R= Residual tumour (remaining tumour after surgery) | |
|--|--|
| RX | Residual tumour cannot be determined |
| R0 | No residual tumour |
| R1 | Microscopically detected residual tumour |
| R2 | Visible residual tumour |